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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/603,429	06/24/2003	Zifei Wang	A03P1031	4308
36802	7590	08/04/2005	EXAMINER	
PACESETTER, INC. 15900 VALLEY VIEW COURT SYLMAR, CA 91392-9221			KAHELIN, MICHAEL WILLIAM	
			ART UNIT	PAPER NUMBER
			3762	

DATE MAILED: 08/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

JP

Office Action Summary	Application No.		Applicant(s)	
	10/603,429		WANG ET AL.	
	Examiner		Art Unit	
	Michael Kahelin		3762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>06242003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 6/24/2003 is noted.

The submission is in compliance with the provisions of 37 CFR 1.97 and 1.98.

Accordingly, the information disclosure statement is being considered by the examiner.

Specification

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
- (f) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.

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- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

It is suggested that the subject heading not be underlined or bolded.

2. The disclosure is objected to because of the following informalities:

"substantially" on page 1, line 28 should be changed to "substantial" and "particularly" on page 17, line 8 should be changed to "particular".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-4, 7, 13, and 15-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Stadler et al. (6,381,493 B1).

5. In regards to claim 1 and 18, Stadler et al. disclose an implantable medical device comprising receiving electrical signals from the heart with a sensing circuit, identifying segments of the cardiac signal subsequent to ventricular repolarization (Fig. 6, element 2), and detects ischemia based on an examination of the segments (Fig. 6, element 6).

6. In regards to claim 2, Stadler et al. disclose that ischemia is detected to predict myocardial infarction (col. 1, line 45).
7. In regards to claim 3, detecting ischemia is based on detecting a sharp falling edge within the segments following repolarization (col. 18, line 7).
8. In regards to claims 13, 15, and 17, a warning signal is provided to an external device to indicate ischemia (Fig. 1A and col. 8, line 55).
9. In regards to claims 4, 16, 19 and 20, Stadler et al. disclose utilizing a high-pass filtered signal (col. 25, line 41), deriving an energy value (potential energy) following each ventricular repolarization with a running average (col. 26, line 3), inputting a first and second threshold value (col. 26, line 35), and detecting a sharp falling edge based on the average value, running average and thresholds (col. 26, line 15). Please note that the examiner interprets a band-pass filter as a high-pass and low-pass filter.
10. In regards to claim 7, Stadler et al. disclose that the energy value consists of summing digitized versions of the filtered signals at a certain start and end time (col. 25, line 52).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

13. Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stadler et al. in view of Berger (5,560,368). Stadler et al. disclose the essential features of the claimed invention except for a high-pass filter with a frequency in the range 0.1 to 5.0 Hz or at least 1.0 Hz. Berger teaches of a method of measuring ECG intervals using a filter with a high-pass cutoff frequency of about 1 Hz (col. 10, line 48) to preserve the repolarization signal. Therefore it would have been obvious to one having ordinary skill in the art at the time of invention to provide a cutoff frequency of 1 Hz to Stadler et al.'s invention to preserve the repolarization signal.

14. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stadler et al. in view of Fischell et al. (6,609,023 B1). Stadler et al. disclose the essential features of the claimed invention except for defining a start time of $S1 + S_to_S_Interval / 4$ and an end time of $S2 - S_to_S_Interval / 4$. Fischell et al. teach of defining the ST interval based on R-R intervals to ensure that an accurate T-wave signal is acquired, regardless of heart rate (col. 21, line 41). Therefore, it would have been obvious to one having

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ordinary skill in the art at the time of invention to define a start time of $S1 + S_to_S_Interval / 4$ and an end time of $S2 - S_to_S_Interval / 4$ for Stadler et al.'s teaching of a R-R interval-based acquisition period. Furthermore, it would be obvious to one having ordinary skill in the art to make a visual estimation of the T-wave interval to provide a heart rate dependent measurement window that requires little computation.

15. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stadler et al. in view of Park et al. (2003/0153956 A1). Stadler et al. disclose the essential features of the claimed invention except for deriving a running average using the equation as claimed. Park et al. teach of a digital smoothing method using the claimed equation to provide a less noisy signal that can be filtered using bit-shifting instead of arithmetic (par. 0083). Therefore, it would have been obvious to one having ordinary skill in the art at the time of invention to derive a running average using the equation as claimed in Stadler et al.'s invention to provide a less noisy signal that can be filtered using bit-shifting instead of arithmetic.

16. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stadler et al. in view of Beker et al. (2003/0208129 A1). Stadler et al. disclose the essential features of the claimed invention except for determining whether the energy integral minus the running average exceeds the first threshold or the running average exceeds the second threshold and determining whether this value is below both thresholds. Beker et al. teach of a method of signal analysis for ECG signals comprising comparing a current wave with a reference wave (fig. 7, element 116), comparing averaged waves to a threshold (fig. 7, element 124), taking action if both

thresholds are exceeded (fig. 7, element 126) and ending if neither threshold is exceeded (fig. 7) to ensure that both individual measurements and average measurements can induce the active state. Therefore, it would have been obvious to someone having ordinary skill in the art at the time of invention to determine whether the energy integral minus the running average exceeds the first threshold or the running average exceeds the second threshold and determine whether this value is below both thresholds with Stadler et al.'s invention to ensure that both individual measurements and average measurements can induce the active state.

17. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stadler et al. in view of Fischell et al. (6,272,379 B1). Stadler et al. disclose the essential features of the claimed invention except for applying a perceptible electrical notification subcutaneously. Fischell et al. teach of an implantable electronic system with a subcutaneous electrical notification system to warn a patient of heart dysfunction (col. 1, line 47). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to apply Fischell et al.'s subcutaneous electrical notification system to Stadler et al.'s invention to warn a patient of heart dysfunction.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Kahelin whose telephone number is (571)272-8688. The examiner can normally be reached on M-F, 9-5.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Angela Sykes can be reached on (571)272-4955. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MWK


JEFFREY R. JASTRZAB
PRIMARY EXAMINER
8/2/05